Stephanie A. Majewski majewski@bnl.gov

CERN • Building 40 1-C01 • Mailbox 28100 • CH-1211 Genève, 23 • Switzerland • +41 22 767 63 12 (office) • +41 76 487 8677 (cell)
http://www.usatlas.bnl.gov/~majewski/

EDUCATION

Stanford University, Stanford, CA **2002–2007**
Ph.D. in Applied Physics
National Physical Science Consortium Graduate Fellowship
Thesis: Study of B-meson Decays to Final States with a Single Charm Baryon
Advisor: Patricia Burchat, Professor, Stanford University [BABAR Collaboration]

University of Illinois, Urbana-Champaign, IL **1998–2002**
Bachelor of Science in Physics with High Distinction
Laura B. Eisenstein Award (2002); Robert C. Byrd Scholar (1998-2002)
Thesis on liquid hydrogen absorber R&D for muon ionization cooling

CURRENT RESEARCH

Experimental particle physicist on the ATLAS experiment at the CERN Large Hadron Collider. Co-primary author on the first ATLAS differential jet cross-section measurement with the full 2010 dataset, published in PRL in April. Commissioned the Liquid Argon Calorimeter. Actively involved in all-hadronic searches for supersymmetry; I currently lead the all-hadronic search for the supersymmetric partner to the top quark.

RESEARCH EXPERIENCE

Postdoctoral Research Associate, Brookhaven National Laboratory (Omega Group) **2007–present**

o *Physics Focus:*
- Searches for supersymmetric (stop) decays to t tbar (all-hadronic) + missing transverse energy.
- Contributing author on the 1 fb^{-1} search for squarks and gluinos in the jets + missing transverse energy channel, submitted to Physics Letters B in September.
- Editorial board member on 1 fb^{-1} search for exotic t tbar resonances (dilepton channel presented at Lepton-Photon 2011)
- Lead analyst and editor of the dijet azimuthal decorrelation measurement based on 36 pb^{-1} (published in Physical Review Letters in April).

o *Detector Performance Studies:*
- Evaluated the impact of LAr electronics failure on jet acceptance in SUSY observables
- Studied the angular resolution of topological clusters using isolated tracks.
- Developed a method to measure the jet reconstruction efficiency in data using track-jets.
- Studied the impact of jet algorithms on track-jets and on SUSY searches.

o *ATLAS Liquid Argon Calorimeter:*
LAr Steering Group member (Apr 2011 - present)
Run Coordinator (Feb 2010 - present): Sub-system operations and commissioning. Primary on-call during the 2010 run; trained, advised, and supported on-call run coordinators in 2011.
Shift Coordinator (Nov 2009 - present): Responsible for 24/7 staffing and training of control room shifters; created and supervise a team of shift consultants to assist with training and consistency.
Online/DAQ/Calibration On-Call Expert (March 2010 - present): Troubleshooting issues related to the data acquisition system; front-end board replacement campaign, Winter 2011.
Software Development: Developed and maintain a system to load calibration constants into the digital signal processors for the calorimetric energy and time measurements.

Graduate Research Assistant, Stanford University **2003–2007**

o *Thesis Analysis:*
Measurements of $B \rightarrow \Lambda_c\, p\, (\pi)$ branching fractions; resonant substructure and angular analysis, including the first observation of $B \rightarrow \Sigma_c(2800)\, p$ and the measurement of the spin of the $\Sigma_c(2455)$ baryon.

o *BaBar Detector Operations:*
Silicon Vertex Tracker on-call expert (Oct 2004 - Feb 2005); shift leader and data quality shifter.

o Internal reviewer for Charm, Charmless 2-Body, and Exclusive Hadronic B decays analysis working groups.

Research Assistant, Laboratory for Physical Sciences, College Park, MD **Jun–Aug 2003, Jun–Aug 2004**
Designed a feedback circuit to cool nanomechanical resonators; fabricated Al-Au microstrips on quartz.
Advisor: Prof. Keith Schwab (now at Caltech)

TEACHING AND MENTORING EXPERIENCE

Supervisor, Julia Gray, Graduate Student at SUNY Stony Brook **Apr 2010–present**
Ms. Gray is pursuing a Ph.D. thesis on the dijet azimuthal decorrelation measurement with the ATLAS detector.

Advisor, CERN Summer Student Programme **Jun–Aug 2009**
Advisee: Andrea Thamm, Univ. of Edinburgh (now Ph.D. student at École Polytechnique Fédérale de Lausanne)
Ms. Thamm completed the proposed project on the performance of jet algorithms on SUSY events.

Teaching Assistant, Stanford University **Apr–Jun 2007**
Led "Introduction to Laboratory Physics" laboratory section for first-year physics majors.

Co-Director, Science Undergraduate Laboratory Internship Program **May–Aug 2006**
Lead role in coordination and logistics for DOE summer program for ~25 undergraduates.
Guided students toward producing research reports (submitted to DOE) and final presentations.
Program Manager: Dr. Michael Woods, SLAC National Accelerator Laboratory

Undergraduate Teaching Assistant, University of Illinois at Urbana-Champaign **Jan–May 2001, Jan–May 2002**
"An Incomplete List of Teachers Ranked as Excellent by Their Students", Spring 2001
Led discussion sections for trigonometry- and algebra-based physics; "introduction to physics research" course.

PRESENTATIONS AT EXTERNAL MEETINGS AND SEMINARS

19th Particles & Nuclei International Conference, "ATLAS Measurements of Jet Cross-Sections," Cambridge, MA, July 2011. [ATL-PHYS-SLIDE-2011-599]

HEP Seminar at Iowa State University, "Azimuthal Decorrelation in Dijet events at $\sqrt{s}$ = 7 TeV," Nov 2010.

5th International Workshop on Quantum Chromodynamics - Theory and Experiment, "Observation of High-pT Jet Production in p p at sqrt(s) = 7 TeV", Martina Franca, Italy, June 2010. [ATL-PHYS-SLIDE-2010-169]

17th IEEE NPSS Real Time Conference, "Electronic Readout of the ATLAS Liquid Argon Calorimeter: Calibration and Performance," Lisbon, Portugal, May 2010. [ATL-LARG-SLIDE-2010-079]

LHC@BNL: Joint Theory/Experiment Workshop on Early Physics at the LHC, "Early Data-Taking with ATLAS," Upton, NY, Feb 2010. [https://indico.bnl.gov/conferenceDisplay.py?confId=206]

American Physical Society Meeting of the Division of Particles and Fields, "Study of Charm Baryon Decays at BABAR," Honolulu, HI, Oct 2006.

12th International Symposium on Particles, Strings, and Cosmology, "Charm Spectroscopy (Mesons and Baryons)," Columbus, OH, Sept 2006.

American Physical Society April Mtg, "Branching Fraction Measurement of $\overline{B}^0 \to \Lambda_c^+ \overline{p}$," Dallas, TX, Apr 2006.

Institute of Electrical and Electronics Engineers Nuclear Science Symposium, "New Effects and Future Performance of the BABAR Silicon Vertex Tracker," Puerto Rico, Oct 2005.

COMPLETE LIST OF PUBLICATIONS

Author on >85 journal articles with the ATLAS Collaboration, and >250 journal articles with the BABAR Collaboration. The selected publication list can be found on page 4; the full publication list is available at http://www.usatlas.bnl.gov/~majewski/publicationlist.html

PROFESSIONAL ACTIVITIES

Member, American Physical Society

Fourth CERN-Fermilab Hadron Collider Physics Summer School, June 2009

Organized an informal journal club for US ATLAS graduate students and postdocs based at CERN, Spring 2009
http://www.usatlas.bnl.gov/~majewski/journalclub.html

SLAC Summer Institute, "The Next Frontier: Exploring with the LHC," Aug 2006

Third Aegean Summer School, "The Invisible Universe: Dark Matter and Dark Energy," Sept 2005

SLAC Summer Institute, "Gravity in the Quantum World and the Cosmos," Aug 2005

OUTREACH

Presentation: "Expecting the Unknown: The Physics of the ATLAS Experiment"
to ~100 students and teachers at Lyons Township High School, Nov 2010

Workshop Leader, Expanding Your Horizons conference for middle school girls:
"Seeing the Invisible", Geneva, Switzerland, Nov 2011
"Particle Hunting with the ATLAS Detector", Geneva, Switzerland, Oct 2009
"Detecting the Invisible", San Jose State University, Feb 2006

Online interview/forum for cogito.org, Johns Hopkins U. Center for Talented Youth, Sept 2009

Sally Ride Science Festival Volunteer, Apr 2007

SLAC Users Organization trip to Washington, DC, Mar 2007

Stanford Community Day "Einstein", Apr 2005

Science Fair Judge, Terman Middle School, Palo Alto, CA, Feb 2005

SELECTED PUBLICATIONS AND CONFERENCE NOTES

Primary Author:

ATLAS Collaboration, "Measurement of Dijet Azimuthal Decorrelations in *p p* Collisions at sqrt(s) = 7 TeV," Phys. Rev. Lett. **106**, 172002 (2011).

ATLAS Collaboration, "Azimuthal Decorrelation in Dijet Events at sqrt(s) = 7 TeV," ATLAS-CONF-2010-083, presented at the Hadron Collider Physics Symposium 2010.

ATLAS Liquid Argon Calorimeter Group, S. Majewski et al., "Electronic Readout of the ATLAS Liquid Argon Calorimeter: Calibration and Performance," presented at the 17th IEEE NPSS Real Time Conference, 2010.

BABAR Collaboration, B. Aubert et al., "Measurements of B(anti-B0 to Lambda+(c) anti-p) and B(B- to Lambda+(c) anti-p pi-) and Studies of Lambda+(c)pi- Resonances," Phys. Rev. **D78**,112003 (2008).

B. Aubert *et al.*, "Measurement of the Branching Fractions of the Decays $\overline{B}^0 \to \Lambda_c^+ \overline{p}$ and $B^- \to \Lambda_c^+ \overline{p}\pi^-$," presented at the 33rd International Conference on High Energy Physics (ICHEP 06), hep-ex/0607055.

V. Re *et al.*, "New Effects Observed in the BABAR Silicon Vertex Tracker: Interpretation and Estimate of Their Impact on the Future Performance of the Detector," IEEE Nucl. Sci. Symp. Conf. Rec. **1**, 73 (2006).

Contributing Author:

ATLAS Collaboration, "Search for squarks and gluinos using final states with jets and missing transverse momentum with the ATLAS Detector in sqrt(s) = 7 TeV proton-proton collisions," arXiv:1109.6572 [hep-ex].

ATLAS Collaboration, "Search for squarks and gluinos using final states with jets and missing transverse momentum with the ATLAS Detector in sqrt(s) = 7 TeV proton-proton collisions," ATLAS-CONF-2011-086, presented at Int'l Europhysics Conference on High Energy Physics, 2011.

ATLAS Collaboration, "Observation of Energetic Jets in pp Collisions at sqrt(s) = 7 TeV using the ATLAS Experiment at the LHC," ATLAS-CONF-2010-043, presented at Physics at LHC 2010.

P. Burchat et al., "Status and prospects of the BaBar SVT," Nucl. Instrum. Meth. **A560**, 5 (2006).

R.J. Barlow *et al.*, "Simulation of PEP-II Accelerator Backgrounds Using TURTLE," Proceedings of the 2005 Particle Accelerator Conference, Knoxville, TN, 1835 (2005).

M.A.C. Cummings *et al.*, "Current LH2-Absorber R&D in MuCool," J. Phys. G, **29**, 1689 (2003).

S. Ishimoto *et al.*, "Convection-type LH2 absorber R&D for muon ionization cooling," Nucl. Instrum. Meth. **A503**, 396 (2003).

D. Kaplan *et al.*, "Progress in Absorber R&D for Muon Cooling," Nucl. Instrum. Meth. **A503**, 392 (2003).

D. Kaplan *et al.,* "Progress in Absorber R&D 2: Windows," Proceedings of the 2001 Particle Accelerator Conference, Chicago, IL, 3888 (2001).

Internal Reviewer:

ATLAS Collaboration, "A Search for ttbar Resonances in the Dilepton Channel in 1.04/fb of pp Collisions at sqrt(s) = 7 TeV," ATLAS-CONF-2011-123, presented at Lepton-Photon 2011.

BABAR Collaboration., "Observation of CP Violation in B → K π and B → π π," Phys. Rev. Lett. **99**, 021603 (2007).

BABAR Collaboration, "Measurement of CP Asymmetries and Branching Fractions in B → π π and B → K π Decays," presented at the 33rd International Conference on High Energy Physics (ICHEP 06), hep-ex/0607106.